

***Amendments to the Claims***

This listing of claims will replace all prior versions, and listings of claims in the application.

1. (previously presented) A method of diagnosing or prognosticating a neurodegenerative disease in a subject, or determining whether a subject is at increased risk of developing said disease, comprising determining a level and/or an activity of

(i) a transcription product of the gene coding for the steroidogenic acute regulatory protein, and/or

(ii) a translation product of the gene coding for the steroidogenic acute regulatory protein, and/or

(iii) a fragment, or derivative, or variant of said transcription or translation product,

in a sample obtained from said subject and comparing said level and/or said activity to a reference value representing a known disease or health status, thereby diagnosing or prognosticating said neurodegenerative disease in said subject, or determining whether said subject is at increased risk of developing said neurodegenerative disease.

2. (original) The method according to claim 1 wherein said neurodegenerative disease is Alzheimer's disease.

3. (currently amended) A kit for diagnosing or prognosticating a neurodegenerative disease, ~~in particular Alzheimer's disease,~~ in a subject, or determining the propensity or predisposition of a subject to develop such a disease by:

(i) detecting in a sample obtained from said subject a varied, or a similar or equal level, or activity, or both said level and said activity of a transcription product and/or of a translation product of a gene coding for the steroidogenic acute regulatory protein compared to a reference value representing a known health status, or representing a known disease status;

and said kit comprising:

a) at least one reagent which is selected from the group consisting of (i) reagents that selectively detect a transcription product of a gene coding for the steroidogenic acute regulatory protein, and (ii) reagents that selectively detect a translation product of a gene coding for the steroidogenic acute regulatory protein.

4. (currently amended) A modulator of an activity and/or of a level of at least one substance which is selected from the group consisting of

- (i) the gene coding for the steroidogenic acute regulatory protein, ~~and/or~~
- (ii) a transcription product of the gene coding for the steroidogenic acute regulatory protein, ~~and/or~~
- (iii) a translation product of the gene coding for the steroidogenic acute regulatory protein, ~~and/or~~ and
- (iv) a fragment, or derivative, or variant of (i) to (iii).

5. (previously presented) A recombinant, non-human animal comprising a non-native gene sequence coding for the steroidogenic acute regulatory protein, or a fragment, or a derivative, or a variant thereof, said animal being obtainable by:

- (i) providing a gene targeting construct comprising said gene sequence and a selectable marker sequence, and

- (ii) introducing said targeting construct into a stem cell of a non-human animal, and
- (iii) introducing said non-human animal stem cell into a non-human embryo, and
- (iv) transplanting said embryo into a pseudopregnant non-human animal, and
- (v) allowing said embryo to develop to term, and
- (vi) identifying a genetically altered non-human animal whose genome comprises a modification of said gene sequence in both alleles, and
- (vii) breeding the genetically altered non-human animal of step (vi) to obtain a genetically altered non-human animal whose genome comprises a modification of said endogenous gene, wherein said disruption results in said non-human animal exhibiting a predisposition to developing symptoms of a neurodegenerative disease or related diseases or disorders.

6. (currently amended) ~~An assay~~ A method for screening for a modulator of neurodegenerative diseases, ~~in particular Alzheimer's disease~~, or related diseases or disorders of one or more substances selected from the group consisting of

- (i) the gene coding for the steroidogenic acute regulatory protein, ~~and/or~~
  - (ii) a transcription product of the gene coding for the steroidogenic acute regulatory protein, ~~and/or~~
  - (iii) a translation product of the gene coding for the steroidogenic acute regulatory protein, ~~and/or~~ and
  - (iv) a fragment, or derivative, or variant of (i) to (iii),
- said method comprising:

- (a) contacting a cell with a test compound;
- (b) measuring the activity and/or level of one or more substances recited in (i) to (iv);
- (c) measuring the activity and/or level of one or more substances recited in (i) to (iv) in a control cell not contacted with said test compound; and
- (d) comparing the levels and/or activities of the substance in the cells of step (b) and (c), wherein an alteration in the activity and/or level of substances in the contacted cells indicates that the test compound is a modulator of said diseases or disorders.

7. (currently amended) A method of screening for a modulator of neurodegenerative diseases, ~~in particular Alzheimer's disease~~, or related diseases or disorders of one or more substances selected from the group consisting of

- (i) the gene coding for the steroidogenic acute regulatory protein, ~~and/or~~
  - (ii) a transcription product of the gene coding for the steroidogenic acute regulatory protein, ~~and/or~~
  - (iii) a translation product of the gene coding for the steroidogenic acute regulatory protein, ~~and/or~~ and
  - (v) a fragment, or derivative, or variant of (i) to (iii),
- said method comprising:
- (a) administering a test compound to a test animal which is predisposed to developing or has already developed symptoms of a neurodegenerative disease or related diseases or disorders in respect of the substances recited in (i) to (iv);

(b) measuring the activity and/or level of one or more substances recited in (i) to (iv);

(c) measuring the activity and/or level of one or more substances recited in (i) or (iv) in a matched control animal which is predisposed to developing or has already developed a neurodegenerative disease or related diseases or disorders in respect to the substances recited in (i) to (iv) and to which animal no such test compound has been administered;

(d) comparing the activity and/or level of the substance in the animals of step (b) and (c), wherein an alteration in the activity and/or level of substances in the test animal indicates that the test compound is a modulator of said diseases or disorders.

8. (previously presented) The method according to claim 7 wherein said test animal and/or said control animal is a recombinant animal which expresses the steroidogenic acute regulatory protein, or a fragment, or a derivative, or a variant thereof, under the control of a transcriptional control element which is not the native steroidogenic acute regulatory protein gene transcriptional control element.

9. (currently amended) An assay for testing a compound, ~~preferably for screening a plurality of compounds~~ for inhibition of binding between a ligand and a translation product of the gene coding for the steroidogenic acute regulatory protein, or a fragment, or a derivative, or a variant thereof, said assay comprising the steps of:

(i) adding a liquid suspension of said translation product of the gene coding for the steroidogenic acute regulatory protein, or a fragment, or derivative, or variant thereof, to a plurality of containers;

(ii) adding a compound or a plurality of compounds to be screened for said inhibition to said plurality of containers;

(iii) adding a detectable, ~~preferably a fluorescently~~ labelled ligand to said containers;

(iv) incubating said translation product of the gene coding for the steroidogenic acute regulatory protein, or said fragment, or derivative, or variant thereof, and said compound or compounds, and said detectable, ~~preferably fluorescently~~ labelled ligand;

(v) measuring amounts of ~~preferably fluorescence~~ detectable label associated with said translation product of the gene coding for the steroidogenic acute regulatory protein, or with said fragment, or derivative, or variant thereof; and

(vi) determining the degree of inhibition by one or more of said compounds of binding of said ligand to said translation product of the gene coding for the steroidogenic acute regulatory protein, or said fragment, or derivative, or variant thereof.

10. (currently amended) ~~Use of a protein molecule, said protein molecule being~~ The method of claim 1, comprising determining a level and/or an activity of a translation product of the gene coding for the steroidogenic acute regulatory protein, SEQ ID NO. 1, or a fragment, or derivative, or variant thereof, ~~as a diagnostic target for detecting a neurodegenerative disease, preferably Alzheimer's disease.~~

11. (currently amended) ~~Use of a protein molecule, said protein molecule being~~ The method of claim 6, wherein said screening is for a modulator of a translation product of the gene coding for the steroidogenic acute regulatory protein, SEQ ID NO. 1, or a fragment, or derivative, or variant thereof, ~~as a screening target for reagents or~~

~~compounds and wherein said modulator is a reagent or compound for preventing, or treating, or ameliorating a neurodegenerative disease, preferably Alzheimer's disease.~~

12. (currently amended) ~~Use of~~ A method of detecting a pathological state of a cell in a sample obtained from a subject, said method comprising staining said cell by immunocytochemical staining with an antibody specifically immunoreactive with an immunogen, wherein said immunogen is a translation product of the gene coding for the steroidogenic acute regulatory protein, SEQ ID NO. 1, or a fragment, or derivative, or variant thereof, ~~for detecting a pathological state of a cell in a sample obtained from a subject, comprising immunocytochemical staining of said cell with said antibody,~~ wherein an altered degree of staining, or an altered staining pattern in said cell compared to a cell representing a known health status indicates a pathological state of said cell.

13. (new) The kit of claim 3, wherein said neurodegenerative disease is Alzheimer's disease.

14. (new) The method of claim 6, wherein said neurodegenerative disease is Alzheimer's disease.

15. (new) The method of claim 7, wherein said neurodegenerative disease is Alzheimer's disease.

16. (new) The assay of claim 9, wherein said assay is for screening a plurality of compounds for inhibition of binding between a ligand and a translation product of the gene coding for the steroidogenic acute regulatory protein, or a fragment, or a derivative, or a variant thereof.

17. (new) The assay of claim 9, wherein the detectable, labelled ligand is a fluorescently labelled ligand.

18. (new)      The assay of claim 9, wherein the detectable label is fluorescence.
19. (new)      The method of claim 10, wherein the neurodegenerative disease is Alzheimer's disease.
20. (new)      The method of claim 11, wherein the neurodegenerative disease is Alzheimer's disease.
21. (new)      The method of claim 7, wherein said screening is for a modulator of a translation product of the gene coding for the steroidogenic acute regulatory protein, SEQ ID NO. 1, or a fragment, or derivative, or variant thereof, and wherein said modulator is a reagent or compound for preventing, or treating, or ameliorating a neurodegenerative disease.
22. (new)      The method of claim 21, wherein the neurodegenerative disease is Alzheimer's disease.
23. (new)      The method of claim 9, wherein said testing is for a compound that is an inhibitor of binding between a ligand and a translation product of the gene coding for the steroidogenic acute regulatory protein, SEQ ID NO. 1, or a fragment, or derivative, or variant thereof, for preventing, or treating, or ameliorating a neurodegenerative disease.
24. (new)      The method of claim 23, wherein the neurodegenerative disease is Alzheimer's disease.